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Bemerkungen über die Parallaxe des Argelander'schens Sterns, und über die Heliometer Beobactungen, von Herrn Dr. Wichmann.

In an earlier part of this *Notice** is an abstract of an elaborate memoir by M. Döllen in opposition to the views of Dr. Wichmann respecting the parallax of the star *Groombridge*, and it is thought desirable to add an abstract of a recent paper by Dr. Wichmann on the same subject, which is printed in the *Astronomische Nachrichten*, Nos. 1010 and 1011. It will be remembered that three years ago Dr. Wichmann published a remarkable paper in the *Nachrichten* on the parallax of this star, in which he discussed the observations made by himself and M. Schlüter with the heliometer. The result was curious and startling, inasmuch as it seemed to show that the more westerly of the stars of comparison had, relatively to the principal star, a parallax amounting to about a second of space, or, that this star, though of very low magnitude, was very much nearer to the solar system than the principal star of which the parallax was sought. Every pains had been taken by Dr. Wichmann to eliminate all sources of error which might have caused such an anomalous result, yet after all his pains he could only arrive at the conclusion that the supposition of the large parallax of the smaller stars led to fewer difficulties than any other hypothesis which could be made. Astronomers were naturally led to view jealously and closely this remarkable result, and, in addition to the notice taken of it in the annual report of this Society for February 1853, two profound critiques were written by Dr. Peters and M. Döllen, the former of which is printed in the *Astronomische Nachrichten*, No. 865; and the latter (abstracted in the present *Notice*), in the *Bulletin Physico-Mathém. de l'Académie de St. Pétersbourg*, tom. xiii.

Dr. Wichmann seems to have hoped to be able to substantiate or disprove the result referred to by a series of observations of his own, but being disappointed in this, he at length feels it necessary to state the views which he entertains of the question at the present time.

He remarks that Dr. Peters had proved the uncertainty of the effect of temperature on the screw of the heliometer, as deduced by M. Bessel, and had shown that in the observations of the *Pleiades* constant differences were found in groups of observations made at different times. M. Döllen had also endeavoured by general considerations to show the uncertainty and want of probability of the parallax found, and to give another explanation of the unmistakeable periodical changes exhibited in the measures; yet still the *possibility* remained, that the star of comparison might really have a conspicuous parallax, and on this account a *direct* contradiction to the questionable result by means of new observations was very desirable. This has been at length effected by the numerous and excellent measures made by Mr. Johnson with the Oxford helio-

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* See 156 *et seq.*

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meter in the years 1852 and 1853, published in the fourteenth volume of the *Observations of the Radcliffe Observatory.* While, from the observations made with the Königsberg heliometer, it resulted that the parallax of the western star of comparison was greater by a second than that of the eastern, Mr. Johnson finds, on the contrary, a small excess of parallax for the eastern star. These two contradictory results show satisfactorily that no confidence can be given to the conclusions respecting the parallax of the comparison-stars derived from the sums of the observed distances. A further scrutiny of the Oxford observations has shown Dr. Wichmann that the sums of so great distances can be found by means of the Oxford heliometer with greater accuracy than with the Königsberg instrument, and that consequently the observations made with it are fully entitled to give a decision concerning the questionable difference of parallax of the stars of comparison. "*I have by this means thoroughly convinced myself,*" says Dr. Wichmann, "*that my hypothesis of the remarkable excess of parallax of the western star is no longer tenable; and further, that the periodical changes of distances exhibited so unmistakeably in the observations have their origin in instrumental causes.* I think it necessary to make this acknowledgment, and I do it so much the more willingly, because my former work might easily give occasion to, and has, in fact, occasioned an erroneous conception of my views. I consequently here repeat expressly that I first took refuge in the hypothesis of the parallax of the star of comparison because all my pains, as well during the observations as the reduction of them, to discover the source of the periodical changes, were fruitless, and I therefore at last held the existence of the parallax of the comparison-star to be at least quite as probable as, nay even more probable than, the existence of periodical errors in the measures, which must certainly appear far less perplexing to one who is not accurately acquainted with the instrument, than to him who, through constant use of it, has learnt to estimate its excellence. The doubts which I entertained concerning the accuracy of my result I could only justify through a feeling of mistrust, and therefore repressed them altogether; whilst, on the contrary, I brought forward everything that seemed to speak in favour of its probability, in the hope that by this means a more extensive examination of it would be the sooner elicited. I do not believe that by this means the independent judgment of an attentive reader would be prejudiced, since the details of my observations and calculations have been given with sufficient fulness to enable him to separate what is certain from the more doubtful matter, and I leave it, therefore, to the judgment of any reader to determine whether the reproaches made to me by M. Döllen, which besides do not affect the work itself, but the conclusions derived from the computations, are well grounded or not. The tone, little suitable to a scientific object, in which those remarks have been expressed, will in the meanwhile be my excuse for not inserting in this place those remarks, which are utterly irrelevant to the subject.

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